

# Claims

[c1] What is claimed is:

1.A welding system comprising:

a power source having a primary contactor and a secondary contactor;

a weld cable connecting the power source to a remote device, the remote device operable in a standby mode; and

a controller to regulate activation of the first and the second contactors such that a non-welding voltage is applied from the power source to the remote device across the weld cable when the remote device is in a standby mode.

[c2] 2.The welding system of claim 1 wherein the remote device is a wire feeder having a plurality of electronics to control operation thereof and wherein the secondary contactor is activated to close a low voltage circuit between the power source and the wire feeder when the wire feeder is in a standby mode to power the plurality of electronics.

[c3] 3.The welding system of claim 2 wherein the wire feeder includes:

an electrode holder configured to hold an electrode in relative proximity to a workpiece such that a welding arc is created between the electrode and the workpiece, the electrode holder having a trigger that when activated commences a welding process; and  
a transmitter configured to detect activation of the trigger and responsive thereto transmit a signal indicative of desired welding operation across the weld cable to the power source.

[c4] 4.The welding system of claim 3 wherein the power source includes a receiver remote from the wire feeder and configured to receive the signal and instruct the controller to regulate the power source according to data embodied in the signal.

[c5] 5.The welding system of claim 4 wherein the controller is designed to cause the primary contactor to close and form a welding circuit between the power source and the wire feeder upon activation of the trigger.

[c6] 6.The welding system of claim 2 further comprising a battery to supply a low voltage power to electronics in the wire feeder when the wire feeder is in a standby mode.

[c7] 7.The welding system of claim 6 wherein the battery is

disposed in the power source.

- [c8] 8.The welding system of claim 1 wherein the primary contactor is configured to only form a welding circuit between the power source and remote device upon receipt of a modulated signal indicative of a welding process initiation command.
- [c9] 9.The welding system of claim 8 wherein the modulated signal includes a data packet embedded with an address, data, and package information checksum.
- [c10] 10.The welding system of claim 2 wherein the wire feeder is further configured to automatically supply consumable wire to the weld when a welding circuit is created between the electrode and the workpiece.
- [c11] 11.The welding system of claim 1 wherein the remote device includes a portable wire feeder.
- [c12] 12.A welding system comprising:
  - a power source configured to supply a first power usable during a welding process and supply a second power usable during a standby mode of operation, the second power having a voltage different from a voltage of the first power;
  - a wire feeder configured to receive the first power from the power source when supplying a consumable elec-

trode to a weld and receive the second power when in the standby mode of operation; and  
a welding cable connecting the power source and the wire feeder and configured to carry the first and the second power thereacross.

[c13] 13.The welding system of claim 12 wherein the power source further comprises a battery to supply the second power to power electronics of the wire feeder during standby mode of operation.

[c14] 14.The welding system of claim 13 wherein the first power provides power for the welding process and the electronics of the wire feeder during the welding process.

[c15] 15.The welding system of claim 13 wherein the wire feeder further comprises a serializing circuit to serialize a data packet indicative of desired operational parameters and wherein the power source includes a decoder to decode the data packet.

[c16] 16.The welding system of claim 15 wherein the desired operational parameters include at least one of power source output magnitude, power source welding mode, purging, and jogging.

[c17] 17.The welding system of claim 12 wherein the voltage

of the second power exceeds the voltage of the first power in amplitude.

- [c18] 18.A method of remotely controlling a power source for welding comprising the steps of:  
packaging feedback of operational commands for a welding-type process into a data packet of encoded data;  
transmitting the data packet to a power source from a remote device across a weld cable designed to provide welding power for the welding-type process; and  
controlling the power source in accordance with at least data embodied in the data packet.
- [c19] 19.The method of claim 18 further comprising the step of serially transmitting multiple data packets to the power source.
- [c20] 20.The method of claim 18 further comprising the step of powering electronics of the remote device when in a standby mode with low voltage DC power applied across the weld cable.
- [c21] 21.The method of claim 18 further comprising the step of powering electronics of the wire feeder when in a welding mode with a portion of the welding power provided across the weld cable.

[c22] 22.The method of claim 18 wherein the data packet includes an address, operational data, and a checksum.

[c23] 23.The method of claim 18 wherein the step of transmitting occurs during an active welding operation.